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ABSTRACT

OBJECTIVE: The objective of the study,isto compare the relationship between lack of sleep and the academic performance of the undergraduate students of a medical college of Pakistan.

METHODS AND MATERIALS:
A cross-sectional study was conducted in a medical college of Pakistanin April 2016. Subjects were recruited by non-probability convenient sampling. A total of 140 subjectswereasked questions about sleep by a properly designed questionnaire from 2nd to 5th Year MBBS. Students having a prior diagnosis of sleep disorder were excluded from study.Data was analyzed using SPSS version 18.

RESULTS:
A total of 101 females and 39 males participated in the study. Duringnon-exam days, 41.14% of the students slept less than seven hours. The figure approached 80% in exam days. Cross tabulation failed to reveal a correlation between hours of sleep and academic performanceSpearman correlation showed a negative academic performance with less sleep in fourth and fifth year students.

CONCLUSION:
Students sacrifice their sleep during exams particularly girls. However, the association of sleep hours and academic performance was not established in this study. In fact, there was a negative association between academic performance and decrease sleep in fourth and fifth year students.

KEYWORDS:
Sleep; students; academic performance.

INTRODUCTION:

Sleep is quintessential to life and health as it is considered food for brain and the primary component that the body needs to revitalize.[1]This alludes to the fact that little doubt exists among health professionals regarding the fundamental importance of sufficient sleep[2]and its integral role in both physical and mental well-being of an individual.[3] Between juggling an erratic college schedule, academic course and personal life, students often find themselves compromising their sleep by unwillingly minimizing their sleep hours.[4] Because of this, as well as a multitude of other reasons, these students or adolescents appear to be particularly more susceptible to disturbed sleep patterns and have been extensively documented as the most sleep-deprived age group in many countries.[5] This is known to have widespread effects; both short-term as well as long-term, and is a potential obstacle in maximizing the success of emerging adults in college.[6]

Sleep is characterized by two factors; quality and quantity, both of which play an equally important role in determining the entire sleep cycle of an individual.[7] If either of these is lacking in any way, a disturbed sleep pattern takes root. Sleep problems have been brewing in our community for quite a while now and recent studies confirmthis by showing that sleep loss has become endemic owing toits increasing prevalence.[6, 8]

Lack of sleep is partially attributed to the fact that students facing an overwhelming amount of pressure due to academic demands tend to fall prey to irregular sleep patterns and succumb tosleep disturbances.[8] These can appear in the form of a host of problems including insomnia, narcolepsy, sleep deprivation or other sleep disorders. [9]

Previous studies also throw light on this newly introduced colloquial term - 'pulling an all-nighter' right before an exam. [10] The ramifications of this

concept have not yet been clearly stated but all studies go against vouching for it since sleepless nights lead to daytime sleepiness and irregular bouts of naps during the day. [11]

In particular, global literature review of medical students' sleeping habits show that they have a more stressful academic program which could contribute to their poor sleep quality above and beyond that already experienced by society. [12] But the epidemiologic studies also show high prevalence in non-medical students as well as general population. [13] In a Lithuanian survey, a study comparing sleep problems in medical students with students in other fields, particularly law and economic students, concluded that medical students had the highest frequency as opposed to other student groups. [14] The main element discriminating them from their peers was a more cumbersome academic load and a different lifestyle. [15] The objective of the study is to compare the relationship between lack of sleep and the academic performance of the undergraduate students of a medical college of Pakistan.

METHODS AND MATERIALS:

STUDY DESIGN AND SAMPLE SIZE:

A cross-sectional study was a done in Foundation University Medical College (FUMC), Islamabad, in April 2016. It was a questionnaire-based survey. The questionnaire was designed after thorough literature review on google scholar and PubMed.The sample comprised of undergraduate students, who were selected on volunteer basis from 2nd year to 5th year of FUMC including only those students who had no past history of sleep disturbances before joining medical studies. The questionnaires were self-administered and confidentiality was assured. Sample size was calculated by WHO sample size calculator and convenient non-probability sampling was done.

INCLUSION AND EXCLUSION CRITERIA:

A total of one hundred and forty subjects participated in study including only those students who had no past history of sleep disturbances before joining medical studies. The students were selected from all classes of the medical college from 2nd Year to 5th Year on a voluntary basis. Students of 1st Year were excluded as their annual result after joining medical college had not yet been compiled. Students suffering from chronic sleep problems prior to joining medical college were also excluded. The recruitment and collection of data continued for 2 weeks.

OPERATIONAL DEFINITIONS:

Lack of sleep was defined as less than 7 hours of sleep per night as defined by World Health organization for old adolescents[16], whereas good academic performance was taken as achieving an average of more than 60% of marks in the last three exams.

DATA ANALYSIS:

Data was entered and analyzed in SPSS version 18.0. Results are expressed in frequencies and percentages. Chi-square test was used to check the relationship of lack of sleep with the academic performance. P-value < 0.05 was taken as level of significance. Spearman correlation test was done to find association between hours of sleep and academic performance.

RESULTS:

One hundred and forty student volunteers filled the questionnaire. Most of the volunteers were female students (72.1%) while males comprising only 27.9%. Most of the students were day scholars. The general characteristics subjects is given in Table 1.

Table 1: General characteristics n=140:

Serial no.	Characteristics	N(%)
1	Gender	
	Male	39(27.9%)
	Female	101(72.1%)
2	Residence	
	Day scholars	99(70.7%)
	Hostilities	41(29.3%)
3	Distribution in classes	
	2nd year	54(38.57%)
	3rd year	22(15.7%)
	4th year	33(23.57%)
	5th year	21(15%)

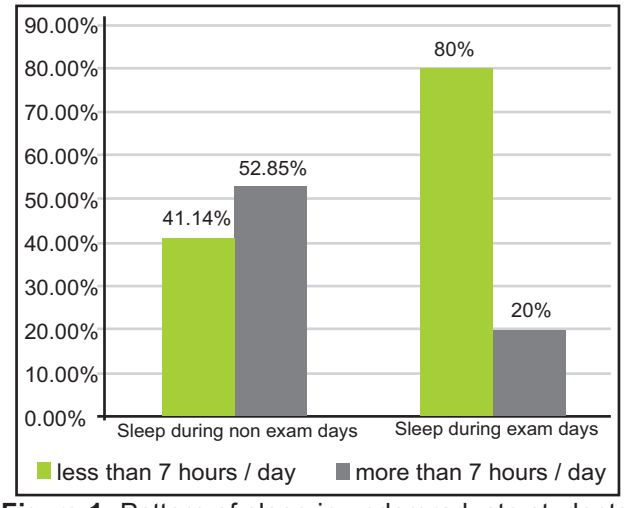

Figure 1. Pattern of sleep in undergraduate students during non-exam days vs. during exams:

A comparison of sleep habits during non-exam days vs. exam days is shown in Figure 1. The figure illustrates that majority of the students develop habit of

sleeping less than 7 hours/day during exams. On the other hand, in non-exam days about 41.14% of students still have inadequate sleep. Cross tabulation was done and chi square was applied to see relationship between academic performance and hours of sleep. The p-value came out to be 0.11. Hence, relationship between hours of sleep and high academic performance was not established. However, the academic performance deteriorated significantly (p 0.01) with same hours of sleep in fourth and final year as compared to second and third year. Spearman correlation (- .3) showed a negative correlation between less hours of sleep and academic performance among fourth and final year students.

DISCUSSION:

The competitive nature of medical field can hardly be exaggerated. Given the tremendous pressure from society, the expectations from parents and the competitive class mates can literally put an engine jam to a student's life. Young students, might end up sacrificing the basic biological needs, to survive in the hostile environment. The current modular system with all the possible advantages and the almost monthly system of examination might add to this.[17] This study was conducted for identifying, a relationship between sleep patterns and academic performance. It is a known fact that sleep problem complaints are more common amongst medical students. [18]Surranietal., from Pakistan concluded a prevalence as high as 40% of poor quality sleep on Pittsburg sleep quality Index(PSQI). [19]In our study about 41.14% of the students have less than 7 hours of sleep in non-exam days. However, this is raised to 80% during exam days, with girls significantly more affected (p< 0.01), which is consistent with Surrani. [20]Giri P, from India has contradicting findings. This report concludes a better sleep in female students and much lower prevalence of poor sleep than seen in our research. [21] In our study the academic performance of the females was not significantly better than the male subjects (p < 0.42). However, a sleep less than 7 hours per day was not significantly associated with poor performance. This is consistent with the findings of Eliassonet al. [21]These findings contradict with the findings of many other researchers who have reported the co-relation between sleep and academic performance. [22,23]With same hours of sleep, the students of second and third year had a better performance than the students of fourth year and final year. Is that a consequence of chronic sleep problems or high academic demands is not clear. The limitations of the study include, that psychiatric morbidity and stress levels were not measured in the subjects. Moreover, the sleep patterns of the subjects before admission in medical college was not recorded. Thus, many students may have a sleep disorder prior to admission in medical college.

CONCLUSION:

Students sacrifice their sleep during exams particularly girls. However, the association of sleep hours and academic performance was not established in this study. There was a decrease in academic performance in students of fourth and fifth year having less than seven hours sleep. This might point out to a cognitive decline due to inadequate sleep over years or increase in academic stress in fourth and fifth years students. Further studies are recommended to correlate less sleep, cognitive decline, academic stress and academic performance.

CONFLICT OF INTEREST: None

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IzzaAdnan;manuscript writing, manuscript review
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